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ABSTRACT

This study investigated whether there was a difference in student achievement in the content areas between students in grades 6-12 who were taught by beginning teachers who were education graduates and students in grades 6-12 taught by beginning teachers who held degrees in areas other than education. It also examined whether there was a difference in the professional skills between these two groups. Participants were 20 beginning North Carolina teachers, their 375 students, and two observers/raters. A pre-posttest design was used to measure student academic achievement. Classroom performance of each teacher was assessed using the revised North Carolina Performance Appraisal Instrument. Classroom observation focused on management of instructional time, management of student behavior, instructional presentation, instructional monitoring, and instructional feedback. At the end of the school year, teachers completed questionnaires regarding their perceptions of support and assistance from the school system and reported their intent to remain in teaching and return to their school. Overall, results found no significant differences in student achievement or teaching behaviors between the two groups. Most teachers planned to return to their school the next year, and most reported having staff development in classroom management. (Contains 26 references.) (SM)

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A Study of Beginning Traditionally Prepared Teachers and Beginning Alternatively Licensed Teachers: Presentation Skills and Students' Achievements

Funded through a grant from
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Research conducted by
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It was early morning when a high school principal, having completed a workout at his YMCA, prepared to head to work. As he walked to his car he noticed an automobile with a license plate that read "PHYSICS." He stopped, pulled out one of his business cards, wrote on it "Would you be interested in teaching high school?" and placed it under the windshield wiper. This principal was desperate for an advanced science teacher (Cenziper, 1997). He was not alone, for personnel directors of public schools across the nation are busily searching for teachers to fill classrooms. News pundits report their plight will only get worse with a projected need for 2.2 million new teachers in the next decade. Though "new teachers" are often thought of as new graduate in their early twenties, this is true in less than 40% of the cases. New teachers come from other school systems, other states, other nations, and other professions. In fact one out of every four teachers has a bachelor's degree in a field other than education (Feistritzer and Chester, 2000). The majority of them have entered the teaching profession via an alternative route, a term used nationally to designate programs that bring adults, with degrees and experiences outside of education, into the teaching profession.

Alternative certification policies have increased the size of the teacher labor pool. Interest and participation in alternative certification programs is strong and continues to grow. Nationally, the NCEI data (Feistritzer& Chester, 2000) show increased numbers of reported state alternative programs, college and university alternative programs, and nontraditional

teaching certificates. States and teacher education programs report increasing numbers of inquiries about alternative routes and increased applications to alternative programs. More alternative candidates are being hired by an increasing number of school systems (Berry, 2000; Schecter, 1987; Wale & Irons, 1990), and growing numbers of alternative certification programs are being developed by colleges and universities (Bradshaw & Hawk, 1996).

The practice of allowing individuals without professional training to teach does not go unchallenged by teacher organizations and some teacher education institutions. However, local districts cannot leave classrooms full of children without teachers. There is a general public interest in allowing people to teach when they are perceived to have content knowledge and related work experience needed by the schools. School board members and administrators tend to support alternative routes to teaching, as do business and political leaders (Feistritzer & Chester, 1995). On the other hand, there are colleges and universities and some professional teaching organizations that resolutely resist providing alternative paths to teaching. Linda Darling-Hammond, a prolific critic of uncertified and out-of-field teachers, strongly advocates for quality teachers, which translated means teachers educated in traditional preparation programs from accredited teacher education institutions (1992, 1996, 1999).

Everyone, including policymakers, teacher educators, public school personnel, and state agencies, must consider issues of quality, but that does

not say there can be only one approach to teacher preparation. Collaborative efforts focusing on research findings and proven best practices, must find meaningful modifications to traditional programs that maintain quality in the teaching force.

North Carolina established its alternative certification policy, Lateral Entry, in 1985. At that time less than one-half of one percent of the new teachers hired in the state were via the lateral entry route. By 1997, 14% of the new teachers entered the profession in this manner. In the Fall of 2001, one out of every four new teachers in the state was practicing on a lateral entry license. The teacher shortage, support of the state's legislators and many of their constituents, for alternative routes into teaching forecasts steady growth for entry into North Carolina's public school classrooms by non-traditional paths. But what of the quality of these alternative route teachers?

The Research

Comparisons of traditionally prepared teachers with those who become teachers without completing an undergraduate teacher education program have come largely from evaluations of alternative programs around the country. Early efforts to evaluate or predict the success of alternative certification policies gained momentum in the late 1980s and drew heavily upon the teacher education research of the 1960s. It reported that interest in this issue is highest during periods of teacher shortage when entry into the profession is more open (Evertson, Hawley, & Zlotnik, 1985; Ashton,

Crocker, & Olejnik, 1987). Both reviews found some evidence to support the need for professional training, but the issue was complicated by varied interpretations of "provisional" certification. Evertson, Hawley, & Zlotnik (1985) found teachers with professional training likely to be, or perceived to be, more effective than those without formal training. Ashton, Crocker, and Olejnik (1987) consistently found small differences favoring regularly certified teachers. Both sets of authors, however, expressed concern about the quality of the research.

Other comparisons of alternative and traditional candidates show few differences between the two groups. Quantitative data seem to support arguments that alternative routes are attracting candidates at least equal in quality to graduates of teacher preparation programs. Test scores and grade point averages of alternative candidates tend to be strong (Wise, 1994; Stafford & Barrow, 1994; Bradshaw, 1991; Wale & Irons, 1990). Performance appraisal data are mixed, but observed differences in evaluation ratings are often small, and performance ratings for alternative candidates are generally adequate (Soares, 1990; Hawk & Schmidt, 1989). Some researchers have found that traditionally prepared teachers do better with classroom management (Adelman, Michie, & Bogart, 1986) but, the performance of alternative candidates tends to improve notably over time. Rosenberg and Rock (1994) found that management differences disappeared by the end of the first year of teaching.

Studies of alternative certification have examined a variety of quality issues, including teacher knowledge, perceived classroom performance, levels of job satisfaction, beliefs, and attitudes (Dill, 1994; Lutz & Hutton, 1989). These qualitative studies support concerns that teachers without professional training may lack sufficient understanding of curriculum, student development, and motivation to plan and organize instruction effectively (Bradshaw & Hawk, 1996). For example, Clarridge (1990) found that alternative candidates were less able to maintain student time-on-task, provide instructional feedback, assess student performance, and present subject matter effectively.

Studies comparing classroom environments of traditionally and alternatively prepared teachers also report mixed results. Knight, etal. (1991) observed that alternatively prepared teachers provided fewer opportunities for students to engage in higher-level thinking, and there was more friction among their students. On a positive note, however, Stoddard (1993) found alternatively prepared teachers more likely to communicate higher expectations to low income and minority students, less likely to rely on drill and practice, and more committed to developing instructional practices that were responsive to the needs of diverse learners. The research suggests that in spite of strong content knowledge, alternative candidates may experience more difficulty with pedagogical content knowledge, the theory and research that informs the way content is

presented in the classroom so that students will be able to understand and use it.

Studies comparing the performance of the students of teachers are scarce, but there are some. Stafford and Barrow (1994) found that differences in student performance seemed more related to teaching experience than type of teacher preparation. However, the National Assessment of Educational Progress (NAEP) reported that, "the strongest and most consistent predictor of a state's average student achievement level is the proportion of well qualified teachers in the state." A "well qualified" teacher was defined as one who was fully licensed and held a major in the field being taught (Darling-Hammond, 1999). In another study, students performed better on the Texas assessment tests in school districts that had higher numbers of licensed teachers (Fuller, 1999). These studies are a beginning, however, if students' performance on standardized test is viewed as a measure of teacher ability, then research is urgently needed in this area. Otuya (1992) defines the issue clearly:

> *"If subject-matter competence combined with pedagogical training is the determinant of effective instruction, then the traditional certification route is the most effective policy to assure educational quality. However, if subject-matter competency without pedagogical training is equally determinant of effective instruction, then alternative certification is equally a viable policy. (p. 2)"*

This research study seeks to respond to Otuya's observations and the education community's need to know the effectiveness of teachers who enter via an alternative route.

The Study

Research Questions:

There are two research question to guide this study.

1. Is there a difference in student achievement in the content areas (math or science or social studies or English) between students in grades 6-12 who are taught by beginning teacher who are education graduates and those students who are taught by beginning teachers who hold degrees in areas other than education?

2. Is there a difference in the professional skills (planning, instruction, assessment, management, etc.) between beginning middle grades and high school teachers prepared in education programs and beginning teachers who hold non-education degrees?

Participants:

The participants in this study included 20 beginning teachers, their students (375), and two observer/raters. Beginning teachers are defined as teachers who have taught no more than seven months. The seven month criteria was to ensure teachers who had not had the advantage of experiences that encompassed the opening of school and staff development prior to entry into the classroom. Unfortunately, these are the condition under which most Lateral Entry teachers are employed. They are also considered the least desirable conditions for teachers to begin teaching.

Lateral entry teachers paired in this study were not to have participated in any special preparation program, such as NC TEACH, Project ACT, Project PAL, etc.

Teachers were selected based upon a paired design. This design is a traditionally prepared (TP) beginning teacher and a lateral entry (LE)

beginning teacher who were matched by school, subject, grade, and level of students. They were beginning teachers employed at the *same* school in the *same* content areas, with students at the *same* level of competence (above average, average, below average, or heterogeneous). This paired design helps eliminate the variables of content differences and school climate variations.

It should be noted here that the paired design made it very difficult to identify subjects. All superintendents and personnel directors of school systems in the 31 eastern counties were contacted. In addition, Charlotte/Mechlenburg, Winston-Salem, Wake, and Durham County school systems were invited to participate. Contact was made by letter, by e-mail, and by phone asking the systems to identify pairs of teacher based upon the criteria. Seven of the school systems refused to participate, three school systems had not been able to hire a traditionally prepared teacher in the recent year, two systems had no beginning lateral entry teachers, eight systems never responded, and 15 systems identified 26 (52 teachers) pairs.

The identified teachers were sent a letter explaining the research and asking for their participation. Of the 26 pairs, both teachers of 12 pairs agreed to participate in the research. Seven of the pairs were high school teachers and seven pairs were middle grades teachers (teachers from two middle grades pairs left during the year reducing their number to five pairs). All participating teachers were teaching with appropriate content degrees (Table 1).

Table 1
Subject Teaching, Degree, Experience, Age of Teachers by Type

Teacher	Subject tchg	Degree	Tchg. Exp.	Age
1	H.S. Social Studies	H.S. Social Studies	3 mo.	23
1a	H.S. Social Studies	Anthropology/History	6 mo.	29
2	H.S. Science	H.S. Science Ed.	6 mo.	24
2a	H.S. Science	Natural Resources	0 mo.	23
3	H. S. Science	H.S. Science Ed.	6 mo.	27
3a	H. S. Science	Physical Science	0 mo.	23
4	H.S. English	English Ed.	7 mo.	27
4a	H.S. English	English	4 mo.	42
5	H. S. English	English Ed.	4 mo.	23
5a	H. S. English	English	4 mo.	42
6	H. S. Math	Math Ed.	4 mo.	23
6a	H. S. Math	Math	4 mo.	29
7	M. G. Math	Elem. Ed.	0 mo.	48
7a	M. G. Math	Mathematics	0 mo.	23
8	M. G. Math	M.G. Math/Science	0 mo.	23
8a	M. G. Math	Applied Math	7 mo.	32
9	M. G. Math	M. G. Math/Science	0 mo.	22
9a	M. G. Math	Mathematics	7 mo.	33
10	M. G. Lang. Arts	English Ed./Psych	7 mo.	34
10a	M. G. Lang. Arts	English	7 mo.	29

Students in a designated class, math or science or English or social studies, of each pair of teachers were selected for this study. The selection of which class was based upon both teachers having students in (1) the same class, for example 9th grade algebra, and (2) the same ability level, for example average. All test grades for students were confidential and reported only by class coded number. At no time were individual scores available to anyone other than the principle researcher.

Two observer/raters were selected and trained. Both had at least six years experience using classroom observation instruments. They did not know whether the teachers they observed for this study were traditionally prepared or lateral entry teachers.

Instruments: A pre-post test design was used to measure the academic achievement of the students during their year with each teacher. The student achievement measured was only for the class designated for this study. The pre-test was administered the first week of October and the post-test in the last week of April. If the school was on block scheduling, the pre-test was in mid-January and the post-test the first week of May. The Stanford Achievement Tests, in the appropriate content, were administered and scored. The mean amount of gain each class made during its time with the teacher was the measure used for comparison. Since the teachers were paired according to content, grade, and academic level, the primary variable that accounts for the students' gains would be the teacher.

The classroom performance of each teacher was assessed using the revised North Carolina Teacher Performance Appraisal Instrument (TPAI). One classroom observation with ratings was conducted in February by two trained external evaluators. The observer/raters used the first five functions of the TPAI: Management of Instructional Time, Management of Student Behavior, Instructional Presentation, Instructional Monitoring, and Instructional Feedback. Within each of the teaching functions there are specific observable classroom teaching practices. The observations were scheduled in advance with the teacher and lasted the entire length of the class period.

At the end of the academic year, all teachers completed a questionnaire regarding their perceptions of support and assistance given to him/her by their school system during their beginning year. In addition, the teachers reported their intent to remain in the profession and to return to their school.

Results

The data are presented in three parts: (1) rater reliability, (2) pre and post tests of the students' achievement, and (3) ratings of the teachers' performance in the classrooms.

Inter-rater reliability

Teachers' classroom performances were rated on five teaching functions. Each function of the TPAI was rated on a scale of .5 to 5.0 using .5 intervals. Thus, each teacher received five ratings, one per function, for

each observation. The observer/raters had one day of training to establish inter-rater reliability. They viewed videotapes of teaching and assigned a rating on each of the five functions for each teacher. Agreement of the raters was positive if they were within .5 of each other. On all functions for all teachers observed during the training videos, the observer/raters were in agreement within .5. Thus, inter-rater reliability was 100%. Table 2 reports the observers' ratings of all five functions on their final training exercise.

Table 2

Inter-rater Reliability on Final TPAI Training Exercise

Function	Rater 1	Rater 2
1. Mgmt of Instructional Time	3.5	4.0
2. Mgmt of Student Behavior	4.0	4.0
3. Instr. Presentation	3.0	3.0
4. Instr. Monitoring	3.5	3.5
5. Instr. Feedback	3.0	3.5

Data analysis

All data were analyzed using SYSTAT 9.0 for Windows. As stated earlier, in an attempt to control for extraneous variables that could contaminate the study, teachers were paired by school, subject, grade, and level of students. By doing the pairing it was hoped that possible variables except one, type of teacher, would be eliminated. To statistically determine if the variable elimination happened or not, an analysis of covariance was conducted. A comparison of the pretest means and the post test means yielded a Pearson product-moment correlation of $r = .978$. The correlation

coefficient explained 95.6% of the variance in the pretest means and the post test means (Table 3). The possibility of any differences found being attributed to chance was less than 5%. Thus the variable of teacher type, traditionally prepared or lateral entry, is the cause of any differences reported in this study.

Table 3
Analysis of Covariance

Source	df	Sum of Squares	Mean Square	F value	P>F
Pretest	1	31,372.462	31,372.462	377.644	0.000
Lic. Type	1	36.297	36.297	.437	0.571
Error	17	1,412.260	83.074		
Total	19	32,821.019			

The first question that was investigated in this study was:

1. *Is there a difference in student achievement in the content areas (math or science or social studies or English) between students in grades 6-12 who are taught by beginning teacher who are education graduates and those students who are taught by beginning teachers who hold degrees in areas other than education?*

A t-test for correlated means was used to compare the mean scores of the pretest and the post tests to see if there was any statistically significant gain in test scores of students by teacher type. Tables 4 and 5 report results of the t-tests.

Table 4

Two-sample t-test on Pretest Grouped by Teacher Type

Group	Mean	SD	t	df	p
Traditionally	654.90	31.699	0.819	18	0.424
Lateral Entry	668.50	41.895			

Table 5

Two-sample t-test on Posttest Grouped by Teacher Type

Group	Mean	SD	t	df	p
Traditional	661.630	39.812	0.657	18	0.519
Lateral Entry	674.170	45.362			

The probability for the pretest was .424 and the posttest was .519 thus neither was statistically significant at the .05 level. There was no significant difference between the achievement of students taught by traditionally prepared beginning teachers and the achievement of students taught by lateral entry beginning teachers.

The second research question was:

2. Is there a difference in the professional skills (planning, instruction, assessment, management, etc.) between beginning middle grades and high school teachers prepared in education programs and beginning teachers who hold non-education degrees?

The results are presented in Table 6 of the professional skills for traditionally prepared and alternative route beginning teachers. Data are presented for each of the five effective teacher functions identified on the TPAI. Teacher scores are the mean of the ratings. The t-test analysis yielded no significant differences in any of the five functions.

Table 6
Standard Deviations and t-tests for Traditionally Prepared
And Alternative Route Teachers Rating of the TPAI

	Traditional			Alternative			
Function	N	Mean	SD	N	Mean	SD	t
1. Mgmt of Instr. Time	10	3.35	.626	10	3.20	.823	0.459
2. Mgmt of Student Beh	10	3.25	.677	10	3.20	.978	0.113
3. Instr. Presentation	10	3.45	.685	10	3.60	.810	0.447
4. Instr. Monitoring	10	3.25	.747	10	3.30	.856	0.139
5. Instr. Feedback	10	3.20	.537	10	3.30	.752	0.342

The end of the year survey provides some additional data. Fourteen of the teachers are planning to return to their schools next year. Three of them are moving and taking teaching position in other school systems. Three of the lateral entry teachers are leaving teaching, one to stay home with her new baby and the other two for financial reasons.

When asked what the participants did best, 11 reported knowing their content (5 TP and 6 LE). Communicating with their students was another area that they felt they did well (5 TP and 4 LE). Eleven teachers reported that what they liked the least was paperwork (5 TP and 6 LE). Communicating with parents was another area that the teachers felt less confident (6 TP and 6 LE).

Fourteen of the teachers reported having staff development in classroom management. All but one believed it to be helpful. Staff development in instructional presentation (teaching strategies) and technology were also provided to the majority of the teachers. Generally, the participants felt the staff development was helpful.

The most discouraging responses were concerning their mentors. One teacher (TP) was not assigned a mentor and seven of the lateral entry teachers reported that their mentors were of no help. When asked to elaborate on their negative responses, the LE teachers generally believed that their mentors were not supportive of alternative routes and therefore offered little assistance.

Discussion

The most salient point to begin the discussion of the result of this study is to identify the limitation of only 10 pairs. The study's design of using pairs of teachers certainly reduces contamination by variables that are usually present in research done in public schools. However, locating matched pairs of teachers was extremely difficult. The focus in North Carolina on increased accountability of schools and teachers may have caused the school systems to be less willing to allow research related to student achievement to be conducted in their schools and teachers to be less willing to participate. Another reason for the reluctance to participate may have been the feeling of "We/I cannot do another thing." School systems are deluged with requirements, reports, compliances, and other mandated tasks. Teachers are floundering in non-instructional tasks and paperwork leaving them with little to no time to participate in research, no matter how important it may seem.

The teachers in the 26 identified pairs were not asked to explain why they chose not to participate. Of the 14 teachers who refused to participate

six were TP and eight were LE teachers. Perhaps those who agreed to be a part of the research were more confident in themselves or their teaching or their situation. The principle researcher visited each pair of teachers to explain the research procedures and to answer any questions they had about the study. Most of the teachers wanted to be assured that the results would be kept confidential and no one would know how their students performed on the tests. One pair of teachers shared that they did not want to participate but their principal wanted them involved.

All the teachers involved with this study were teaching in the area in which they had obtained their bachelor's degree. There were no TP teachers teaching out of field and no LE teachers who did not have a degree in what they were teaching. This is not always the case with LE teachers because often they are hired with "degrees in related areas", e.g. a political science graduate hired to teach high school history. This knowledge of content is another possible explanation for the absence of a significant difference in student achievement.

The age range of TP teachers was 23 to 48 and the range for LE teachers was 23 to 42. Usually LE teachers are older and have more experiences. In this study the mean age of TP teachers was 27.4 years and for LE teachers 30.1 years. This was not a significant difference and does not contribute to the results of this study.

The raw scores on the achievement tests showed that the means of five of the classes actually went down on the post-test. Three of those

classes were taught by LE teachers and two by TP teachers. Three of the classes were at the high school level and two at the middle school level. There was one high school class, taught by a TP teacher, whose achievement was 24 points (the mean was 6.6) and one middle grades class taught by a LE teacher, whose achievement was 19. Reviewing the raw scores provided no particular insight.

The observations and ratings done by the observer/raters provided no significant difference in classroom performance. The raters did not know whether the teachers were TP or LE teachers. However, one rater wrote the following about one of the middle grades LE teachers.

> *"He was the best teacher I have observed(in this study). Great! Enthusiastic! Very knowledgeable, organized and used humor on occasion to get his point across."*

One of the raters also wrote this about a LE teacher in the study.

> *" I was appalled! She was rude-screamed-beat the kids down."*

These observations are shared to illustrate that the LE teachers in the study ranged from very good to very ineffective.

In the surveys completed by all the teachers, two LE teachers said they were not returning for financial reasons. One of them wrote, *" I will no longer be teaching because of my economic situation-if it paid 50-100% more than teaching does, I would return."* Perhaps this teacher has identified a root problem for attrition.

This study was interesting. The results can be viewed as positive from the realization that there is more than one route to teaching. The large

majority of students did achieve whether the teacher was traditionally prepared or entered teaching in an alternative manner. Because of the small number of participants the results are not generalizable. However, it does show that more research needs to be done in this area and that school systems should be strongly encouraged to participate in research of this nature. One out of every four teachers hired this year in North Carolina is projected to be a LE teacher. If this is so, then data concerning their effectiveness in the classroom must be gathered. If the state's greatest number of LE teachers is in the elementary grades then research must be conducted with elementary teachers. It is critical for higher education and for North Carolina to better understand the competence of their teaching force.

Conclusions

This study was conducted with middle grades and secondary beginning teachers who had entered the profession by either the traditional teacher preparation program or the lateral entry route. There was no significant difference in the student achievement of students taught by beginning TP teachers and students taught by beginning LE teachers. There were no significant differences in the teaching behaviors of TP teachers and LE teachers as measured by the revised TPAI. The research was done using a paired design that matched a TP beginning teacher with a LE beginning teacher. The number of pairs is considered a limitation.

It is recommended that additional studies of this design be conducted at the elementary level and replicated at the middle grades and secondary levels. Having more than one route to enter teaching is desirable. This study would suggest that lateral entry is a viable route to enter the teaching profession, however, the public needs to be assured that every child does have a competent teacher. Research can help provide this information.

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